

WHAT IS CLAIMED IS:

1. A cylinder cleaning device for cleaning a circumferential surface of a cylinder by pressing a cleaning fabric passed between cleaning fabric supplying element for said cleaning fabric and cleaning fabric take-up shaft assembly for taking up said cleaning fabric against said circumferential surface of said cylinder, comprising:

5 a frame;

said cleaning fabric take-up shaft assembly, supported to said frame, that includes a shaft member which has a circular shape in cross section and which has a portion of the outer periphery thereof partially cut out extending in an axial direction;

10 a bar member which is disposed in said cut out portion of said shaft member and is supported to the end of said shaft member at one end thereof as well as being rotatable between a first position when the cleaning fabric is take up and a second position when the cleaning fabric -which has been taken-up is pulled out from said shaft member,

15 said bar member having such a shape in cross section that when said bar member is rotated from the first position to the second position, said bar member is released from the inner surface of the cleaning fabric in a condition where said bar member is in contact with the cleaning fabric which has been taken up to said shaft member.

20 2. A cylinder cleaning device according to claim 1. wherein said bar member is removable from the end of shaft member at one end thereof.

3. A cylinder cleaning device according to claim 1, wherein the partially cut out portion of said shaft member is formed by a groove.

25 4. A cylinder cleaning device according to claim 1, wherein the partially cut out portion of said shaft member has at least one wall surface which extends to a circumferential surface of said shaft member.

5. A cylinder cleaning device according to claim 1, wherein Paid bar member has an elliptic shape in cross section.

6. A cylinder cleaning device according to claim 1, wherein said bar member has polygonal shape in cross section.

30 7. A cylinder cleaning device according to claim 1, wherein said bar member has such a shape in cross section that a circular is partially cut out in a straight line.

8. A cylinder cleaning device according to claim 1, wherein the cleaning fabric is passed between said bar member and said shaft member to rotate the bar member and the cleaning fabric is engaged between said bar member and said shaft member.

9. A cylinder cleaning device according to claim 3, wherein the cleaning fabric is passed between said bar member and a groove of said shaft member to rotate the bar member and the cleaning fabric is engaged between said bar member and the groove of said shaft member.

10. A cylinder cleaning device for cleaning a circumferential surface of a cylinder by pressing a cleaning fabric passed between cleaning fabric supplying element for said cleaning fabric and cleaning fabric. Take-up shaft assembly for taking up said cleaning fabric against said circumferential surface of said cylinder, comprising:

a frame;

said cleaning fabric take-up shaft assembly, supported to said frame, that includes a shaft member which has a circular shape in cross section and which has a portion of the outer periphery thereof partially cut out extending in an axial direction;

15 a bar member which is disposed in said partially cut out portion of said shaft member and is supported to the end of said shaft member at one end thereof as well as being rotatable between a first position when the cleaning fabric is taken up and a second position when the cleaning fabric which has been taken up is pulled out from said shaft member;

20 said bar member having such a shape in cross section that when said bar member is rotated from the first position to the second position, said bar member is released from the inner surface of the cleaning fabric in a condition where said bar member is, in contact with the cleaning fabric which has been taken up to said shaft member; and

25 a gap formed between a part or the whole of said bar member which is attached to said shaft member and a bottom of said groove in said shaft member, and when bar member is detached from the end of said shaft member, said shaft member is moved toward said gap and pulled out from said cleaning fabric.

30 11. A cylinder cleaning device according to claim 10, wherein the depth of said gap is greater from at, or in the vicinity of, the end of said shaft where said bar members are to be extracted from said shaft member, to the opposite end of said shaft.

12. A cylinder cleaning device according to claim 10, further comprising: a hook member having a bar member hook portion in the middle of said groove in said shaft member, wherein an end of said bar member detachably engages said bar member hook portion to thereby attach said bar member to said shaft member.

5 13. A cylinder cleaning device according to claim 12, wherein each of said bar members includes a plurality of bar member segments, in the axial direction of said shaft member and toward the center of said shaft, and wherein ends of said bar members on one side are detachably engaged with said bar member hook portion of said hook member, so that said bar member is pulled out from both ends of said shaft member.

10 14. A cylinder cleaning device according to claim 12, wherein a plurality of said hook members are formed.

15. A cylinder cleaning device for cleaning a circumferential surface of a cylinder by pressing a cleaning fabric passed between cleaning fabric supplying element for said cleaning fabric and cleaning fabric take-up shaft assembly for taking up said cleaning fabric against said circumferential surface of said cylinder, comprising:

a frame;

said cleaning fabric take-up shaft assembly, supported to said frame, that includes a shaft member which has a circular shape in cross section and which has a groove formed in part of the outer surface thereof and extending in an axial direction; two bar members which are disposed in the groove of said shaft member in parallel arrangement and are detachably supported to the end of said member at each one end thereof as well as being movable between a first position when the cleaning fabric is taken up and a second position in which said shaft member is detached from the end thereof and when the cleaning fabric which has been taken up is pulled out from said shaft member;

20 25 wherein when said bar members move from the first position to the second position, said bar members are released from the inner surface of the cleaning fabric in a condition where said bar members are in contact with the cleaning fabric which has been taken up to said shaft member.

16. A cylinder cleaning device according to claim 15, wherein a plurality 30 of said grooves are formed in said outer surface of said shaft and wherein said bar members are detachably fitted in said grooves, respectively.

17. A cylinder cleaning device according to claim 15, wherein when the cleaning fabric is passed between said bar members and a groove of said shaft member to move the bar members to the first position, the cleaning fabric is engaged between said bar members and a groove of said shaft member.

5 18. A cylinder cleaning device for cleaning a circumferential surface of a cylinder by pressing a cleaning fabric passed between cleaning fabric supplying element for said cleaning fabric and cleaning fabric take-up shaft assembly for taking up said cleaning fabric against said circumferential surface of said cylinder, comprising:

10 a frame;  
said cleaning fabric take-up shaft assembly, supported by said frame, that includes a mechanical structure for changing a circumference of said cleaning fabric take-up shaft assembly thereof to mechanically change a condition in contact with said cleaning fabric, which is wound up around said cleaning fabric take-up shaft assembly, with said mechanical structure consisting of a shaft member, for which a groove of a  
15 predetermined width is formed in an outer surface of said shaft in the axial direction thereof, and a bar member, which is inserted into said groove of said shaft member so that said cleaning fabric contacts one part of an outer surface during the winding of said cleaning fabric, and which has at least one end detachably attached to an end of said shaft member, and with said bar member consisting of a plurality of bar member segments, one end of said  
20 shaft member and the other end of said bar member being detachably attached to the other end of said shaft member, so that when said pair of bar members are attached to said shaft member, said pair of bar members are connected to each other.

19. A cylinder cleaning device according to claim 18, wherein, in said connection structure for said pair of bar members, a connection member is attached to an end  
25 of said bar member, or ends of both of said bar members, to be coupled with other bar member via said connection member.

20. A cylinder cleaning device according to claim 18, wherein, in said connection structure for said pair of bar members, a portion to be engaged is formed to one bar member and an engagement portion is provided to the other bar member, so that said  
30 engagement portion is connected to said portion to be engaged.

21. A cylinder cleaning device according to claim 20, wherein said portion to be engaged is a hole formed in a distal end of said bar member, and said engagement portion is a projection, and wherein said projection is fitted into, and coupled with, said hole by moving said bar member in a longitudinal direction.

5 22. A cylinder cleaning device for cleaning a surface of a cylinder by pre-tensioning a cleaning fabric passed between cleaning fabric supplying element for said cleaning fabric and cleaning fabric take-up shaft assembly for taking up said cleaning fabric against said surface of said cylinder, comprising;

10 a frame;

engagement means for engaging means of said cleaning fabric to be engaged at an outer surface or at a shaft end of said take-up shaft supported by said frame.

15 23. A cylinder cleaning device according to claim 22, wherein a notched portion is formed in said outer surface of said take-up shaft, and said engagement means is provided for said notched portion.

20 24. A cylinder cleaning device according to claim 22, wherein said take-up shaft has a shell member, and said engagement means is provided for said shell member.

25 25. A cylinder cleaning device according to claim 22, wherein said engagement means has a mechanism for disengaging a coupling condition of said engagement means and said means to be engaged.

20 26. A cylinder cleaning device according to claim 22, wherein a mechanism for disengaging a coupling condition of said engagement means and said means to be engaged is provided separately from said engagement means.

25 27. A cylinder cleaning device according to claim 22, wherein a portion that contacts said outer surface of said take-up shaft close to said cleaning fabric have a sliding property.

28. A cylinder cleaning device according to claim 22, wherein a portion that said outer surface of said take-up shaft have a sliding property.

29. A cylinder cleaning device according to claim 22, wherein a portion that contacts said outer surface of said take-up shaft close to said cleaning fabric and said outer surface of said take-up shaft have a sliding property.